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EXAMINER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ROLAND EHRT and MARTINA JOHANNES

Appeal 2016-005883
Application 13/817,526
Technology Center 1700

Before JEFFREY T. SMITH, MARK NAGUMO, and
SHELDON M. McGEE, *Administrative Patent Judges*.

Opinion for the Board filed by *Administrative Patent Judge* McGEE.

Opinion Dissenting filed by *Administrative Patent Judge* NAGUMO.

McGEE, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants seek our review under 35 U.S.C. § 134(a) of the Examiner's final decision to reject claims 10–15. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

BACKGROUND

The subject matter on appeal relates to veneering ceramic compositions used for dental restorations. Specification (hereinafter “Spec.”) ¶ 1.

Independent claim 10 is representative and is reproduced from the Claims Appendix of the Appeal Brief:

10. A veneering ceramic for dental restorations, wherein the ceramic comprises yttrium-stabilized zirconium dioxide comprising, in mass percent:

- | | | |
|------|--------------------------------|-------------|
| (a) | SiO ₂ | 55.0 – 72.5 |
| (b) | Nb ₂ O ₅ | 6.0 – 19.8 |
| (c) | B ₂ O ₃ | 1.0 – 9.0 |
| (d) | Al ₂ O ₃ | 1.2 – 6.0 |
| (e) | Li ₂ O | 5.0 – 16.5 |
| [(f) | Na ₂ O | 1.4 – 11.0 |
| [(g) | ZrO ₂ | 0.5 – 4.0. |

Appeal Br. 15.

DISCUSSION

The Examiner rejects claims 10–15 under 35 U.S.C. § 103(a) as being unpatentable over Brodkin¹ in view of Stephan.² The Examiner finds that “Brodkin teaches a dental ceramic composition . . . with component[] amounts overlapping those of the current claims . . . with the exception of niobium pentoxide.” Final Act. 3. The Examiner finds further that “Stephan

¹ Brodkin, et al., US 2005/0127544 A1, published June 16, 2005 (hereinafter “Brodkin”).

² Stephan, et al., US 2010/0112331 A1, published May 6, 2010 (hereinafter “Stephan”).

shows that in silicon based dental ceramics it is common to increase the relative amount of niobium pentoxide up to 60%, [and] more specifically 0.1 to 20%” because “niobium pentoxide increases chemical stability in silicon dioxide based ceramic systems.” *Id.*, citing Stephan ¶¶ 9, 12. The Examiner concludes that it would have been “obvious to use the amount of niobium pentoxide in the invention of Brodtkin according to the guidance of Stephan in order to control the chemical stability of the system of Brodtkin.” *Id.* at 3–4.

Appellants argue claims 10 and 12–15 as a group (Appeal Br. 6–10; Reply Br. 2–6) and argue claim 11 separately (Appeal Br. 13). We, therefore, decide the propriety of this rejection on the basis of claims 10 and 11. Dependent claims 12–15 will stand or fall with independent claim 10. 37 C.F.R. § 41.37(c)(1)(iv).

We have reviewed each of Appellants’ arguments for patentability. However, we sustain the Examiner’s rejection for essentially those reasons expressed in the Final Rejection and Answer, and we add the following primarily for emphasis.

Appellants argue that Brodtkin’s ceramics are “lithium disilicate based” and disagree with the Examiner’s characterization of Brodtkin’s compositions being “silica based.” Appeal Br. 6; Reply Br. 2. This argument does not identify reversible error in the Examiner’s finding that Brodtkin’s Table 1 discloses each of the oxides recited in claim 10, and in amounts which overlap six of the seven mass percent ranges recited in claim 10. Final Act. 3. We also note that Brodtkin discloses that lithium disilicate may be “applied to the high strength reinforcing bar” of the dental appliance, and that “[t]he compositions of the *lithium disilicate glass-ceramics*

comprise[,] *inter alia*, silica, lithium oxide, alumina, potassium oxide and phosphorus pentoxide *in the ranges given in Table 1.*” Brodkin ¶ 55 (emphasis added). Thus, Brodkin’s compositions can have both lithium disilicate and silica. We emphasize here that claim 10 recites “comprising” and, thus, does not exclude additional, un-recited elements such as lithium disilicate. Accordingly, it is of no moment whether Brodkin classifies his compositions as “lithium disilicate based” or “silica based.”

Appellants argue that Brodkin’s paragraph 56 and a significant number of exemplified compositions are silent regarding the presence of niobium pentoxide. Appeal Br. 7, 9. This argument is not persuasive of reversible error. It has not been disputed that Brodkin discloses niobium pentoxide can be present in concentrations of up to 2 wt %. *See*, Brodkin Table 1. Any lack of disclosure in other portions of Brodkin does not negate the teachings of the reference as a whole. “It is well settled that a prior art reference is relevant for all that it teaches to those of ordinary skill in the art.” *In re Fritch*, 972 F.2d 1260, 1264 (Fed. Cir. 1992).

Appellants argue that a person of ordinary skill in the art would have recognized from Stephan that it would not have been necessary to increase the chemical stability of “glasses with a high proportion of network formers (e.g., SiO₂, B₂O₃) . . . because these materials already ‘have very good mechanical and chemical stabilities’.” Appeal Br. 8. Appellants argue further that “none of the exemplified glass-ceramic compositions of [Brodkin], all of which contain a high proportion of network formers . . . contains any Nb₂O₅,” presumably because of their inherent chemical stability. *Id.* at 9.

This argument is likewise unpersuasive of reversible error. Appellants seem to be arguing that because Brodkin's compositions have what Appellants consider to be a "high" proportion of network formers such as silica, increasing Brodkin's niobium pentoxide concentration is unwarranted because the ordinary skilled artisan would have considered such compositions "stable enough." We are not persuaded by this argument for several reasons. First, we observe that in the same paragraph where Stephan discusses adding Nb₂O₅ to affect "a significant improvement in chemical stability," Stephan also discloses an embodiment containing from 10 to 70% by weight SiO₂, from 1% to 40% Na₂O/K₂O and from 1 to 60% by weight Nb₂O₅. Stephan ¶ 9. Such disclosure encompasses compositions that fall within Appellants' asserted "high" proportion of network formers—"at least about 53% by weight of SiO₂" (Appeal Br. 9)—and amounts of Nb₂O₅ that fall within, and even exceed, the claimed range of 6.0–19.8 % by weight. Furthermore, Appellants have not directed us to evidence that niobium pentoxide concentrations in excess of Brodkin's 2% by weight, in compositions having certain "high" proportions of network formers such as silica, would not result in some increase in chemical stability. "Attorney's argument in a brief cannot take the place of evidence." *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974).

Appellants contend further that "it also is highly unlikely that one of ordinary skill in the art wishing to improve or at least modify the compositions disclosed in [Brodkin] would even consider the disclosure of [Stephan]" because of the "fundamental differences" between the compositions disclosed therein. Appeal Br. 10. This argument is unpersuasive of reversible error because, as correctly observed by the

Examiner, “both Brodkin and Stephan teach silica based dental glass compositions and both teach the importance of using niobium pentoxide in their relative compositions. The primary difference between the two is that Stephan teaches the possibility of using significantly more niobium pentoxide . . . than Brodkin does.” Ans. 5. We recognize that

it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does . . . because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.

KSR Int’l Co. v. Teleflex Inc., 550 U.S. 398, 418–19 (2007).

Here, the Examiner indeed provides a reason why one of ordinary skill would combine the teachings of Brodkin with those of Stephan to arrive at the claimed amounts of niobium pentoxide—to improve the composition’s chemical stability. Ans. 4. The Examiner reasons, and Appellants do not dispute, that Stephan’s disclosure regarding improvement in stability is not just related to infiltration systems. *Id.* at 4–5. Rather, the Examiner observes that Stephan’s teachings are also applicable to silica-based systems, such as those disclosed in Brodkin. *Id.* at 5.

Thus, for the reasons articulated by the Examiner in the Final Action and the Answer, and for the reasons expressed above, we sustain the Examiner’s rejection of claims 10 and 12–15.

Appellants argue that claim 11 is separately patentable because it recites an even higher minimum amount of Nb₂O₅, and that neither Brodkin nor Stephan teach or suggest such a high concentration of Nb₂O₅ in compositions such as Brodkin’s, if Nb₂O₅ would even be included at all in

view of Brodtkin's lack of Nb₂O₅ in the examples. Appeal Br. 13. This argument fails to persuade us of reversible error. We again emphasize that a reference's disclosure is not limited to preferred embodiments or examples. *Fritch*, 972 F.2d at 1264. Furthermore, as with claim 10, Stephan's disclosure at ¶ 9 discloses an embodiment that allows for concentrations of Nb₂O₅ that fall within those amounts recited in claim 11.

We, thus, sustain the Examiner's rejection of claim 11.

SUMMARY

The Examiner's final decision to reject claims 10–15 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ROLAND EHRT and MARTINA JOHANNES

Appeal 2016-005883
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Before JEFFREY T. SMITH, MARK NAGUMO, and
SHELDON M. McGEE, *Administrative Patent Judges*.

NAGUMO, *Administrative Patent Judge*, dissenting.

I respectfully dissent.

In particular, I find that the record fully supports Appellants' argument that Brodkin and Stephan are directed to very different materials. (Br. 6–7.) As illustrated in paragraphs [0056] to [0059] of Brodkin, quoted by Appellants, Brodkin is directed to sinterable glass-ceramics. In contrast, as illustrated in paragraphs [0007]–[0009] of Stephan, also quoted by Appellants (*id.* at 7–8), Stephan is directed to a niobium-rich “glass that can be infiltrated into all the known all-ceramic matrices.” Not surprisingly, the compositions of Brodkin’s glass-ceramics and of Stephan’s infiltrating glasses share some common components (the glasses of Stephan are intended to be compatible with ceramics used for dental restorations, which

is a primary intended use for Brodkin's glass-ceramics). But because the physical properties of the compositions are designed for such different uses, the relative amounts of components differ significantly, as Appellants argue (Br. 10–11). It follows that, as a consequence, a person of ordinary skill in the art would not have considered looking to the infiltrating glasses disclosed by Stephan to modify the sinterable glass-ceramic compositions disclosed by Brodkin.

Moreover, the Examiner has not come forward with a good reason to exceed the amount of niobium oxide suggested by Brodkin by a factor of at least three. As Appellants point out (Br. 9, 1st para.), Brodkin discloses that “Nb₂O₅ and Ta₂O₅ modify the refractive index as well as aid nucleation and chemical durability of the resulting glass ceramics” (Brodkin 7 [0067], penultimate sentence). Thus, the effect of Nb₂O₅ on the multi-phase glass-ceramic compositions of Brodkin would have been expected to be considerable. Neither the Examiner nor the Majority have shown a basis in the record for a reasonable expectation that such a large change in composition, outside the scope of Brodkin's disclosure, would have resulted in predictable, let alone desirable, products of interest to Brodkin.

On the present record, I would reverse the appealed rejections, and I therefore dissent, with respect.